WHAT IS CLAIMED IS:

1. Use of a composition comprising an amount of a recombinant adeno-associated virus (rAAV) vector including an open reading frame encoding a gene product in the manufacture of a medicament effective to prevent or inhibit neurocognitive deterioration, enhance neuro-cognition, or recover neurologic function in a mammal manifesting or at risk of having a disorder of the central nervous system.

2. The use of claim 1, wherein the mammal is a human.

3. The use of claim 1 or claim 2, wherein the mammal is not an adult.

4. The use of claim 2 or claim 3, wherein the human is about 6 to about 13 years old.

5. The use of claim 2 or claim 3, wherein the human about 4 months to about 5 years old.

6. The use of claim 2 or claim 3, wherein the human is less than 2.5 years old.

7. The use of any one of claims 2 to 6, wherein the human has received a bone marrow transplant or enzyme replacement therapy.

8. The use of any one of claims 1 to 7, wherein the mammal has or is at risk of having mucopolysaccharoidosis type I (MPSI), mucopolysaccharoidosis type II (MPSII), spinal cord muscular atrophy, or Batten disease.

9. The use of any one of claims 1 to 8, wherein the open reading frame encodes IDUA, iduronate-2-sulfatase (IDS), survivor motor neuron-1 (SMN-1) or ceroid lipidfucinosis protein (CLN).

10. The use of any one of claims 1 to 9, wherein the amount reduces GAG levels in the brain or prevents or reduces hydroencephaly.

11. The use of any one of claims 1 to 10, wherein the amount decreases or prevents skeletal dysplasia or spinal cord compression.

12. The use of any one of claims 1 to 11, wherein the amount decreases hepatosplenomegaly.

13. The use of any one of claims 1 to 12, wherein the amount decreases cardiopulmonary obstruction.

14. The use of any one of claims 1 to 13, wherein the mammal is not treated with an immune-suppressant.

15. The use of any one of claims 1 to 13, wherein the mammal is treated with an immunosuppressant.

16. The use of claim 15, wherein the rAAV and the immune suppressant are to be coadministered or the immune suppressant is to be administered after the rAAV.

17. The use of any one of claims 1 to 16, wherein the mammal is not immunotolerized prior to the administration of rAAV.

18. The use of any one of claims 1 to 16, wherein the mammal is immunotolerized prior to the administration of rAAV.

19. The use of any one of claims 1 to 18, wherein the mammal is immunocompetent.

20. The use of any one of claims 1 to 19, wherein the rAAV vector is a rAAV1, rAAV3, rAAV4, rAAV5, rAAVrh10, or rAAV9 vector.

21. The use of claim 9, wherein the rAAV encoding iduronate-2-sulfatase further encodes sulfatase modifying factor 1.

22. The use of claim 9, further comprising an rAAV encoding sulfatase modifying factor 1, which is to be administered in conjunction with the rAAV encoding iduronate-2-sulfatase.

23. The use of any one of claims 1 to 22 wherein multiple doses are to be administered.

24. The use of any one of claims 1 to 22, wherein the composition is to be administered weekly.

25. The use of any one of claims 1 to 24, wherein the rAAV is rAAV9 or rAAVrh10.

26. The use of any one of claims 1 to 25, wherein the rAAV is to be intrathecally, intracerebrovascularly or intravenously administered.

27. The use of any one of claims 1 to 26, wherein the rAAV is to be administered to the cisterna magna.

28.The use of any one of claims 15 to 27, wherein the immune suppressant comprises cyclophosphamide, a glucocorticoid, cytostatic agents including an alkylating agent, an anti-metabolite, a cytotoxic antibiotic, an antibody, an agent active on immunophilin, a nitrogen mustard, nitrosourea, platinum compound, methotrexate, azathioprine, mercaptopurine, fluorouracil, dactinomycin, an anthracycline, mitomycin C, bleomycin, mithramycin, IL-2 receptor- (CD25-) or CD3-directed antibodies, anti-IL-2 antibodies, ciclosporin, tacrolimus, sirolimus, IFN-β, IFN-γ, an opioid, or TNF-α (tumor necrosis factor-alpha) binding agent.

29. The use of any one of claims 1 to 28, wherein the amount of rAAV which is to be administered is about 1.3×10^{10} GC/g brain mass to about 6.5×10^{10} GC/g brain mass.

30. The use of any one of claims 1 to 28, wherein the amount of rAAV which is to be administered is about 1×10^{13} to 5.6×10^{13} GC (flat dose per mammal).

31. The use of any one of claims 1 to 28, wherein the amount of rAAV which is to be administered is about 1×10^{12} to about 5.6×10^{13} GC (flat dose per mammal).

32. The use of any one of claims 29 to 31, wherein the rAAV is to be intrathecally administered.

33. A composition comprising an amount of a recombinant adeno-associated virus (rAAV) vector including an open reading frame encoding a gene product for use in preventing or inhibiting neurocognitive deterioration, enhancing neurocognition, or recovering neurologic function in a mammal manifesting or at risk of having a disorder of the central nervous system,